Augmenting 3D Interactions with haptic guide in a Large Scale Virtual Environment

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Résumé en anglais	Interaction techniques play a vital role in virtual environments' enrichment and have profound effects on the user's performance and sense of presence as well as realism of the Virtual Environment (VE). In this paper we present a new haptic guide model for object selection. It is utilized to augment the Follow-Me 3D interaction technique dedicated to object selection and manipulation. The fundamental concept of the Follow-Me technique is to divide VE into three different zones (free manipulation, visual and haptic assistance zones). Each one of the three zones is characterized by a specific interaction granularity which defines the properties of the interaction in the concerned zone. This splitting of VE is aimed to have both precision and assistance (zones of visual and haptic guidance) near the object to reach or to manipulate and to maintain a realistic and free interaction in the VE (free manipulation zone). The haptic and visual guides assist the user in object selection. The paper presents two different models of the haptic guides, one for free and multidirectional selection and the second for precise and single direction selection. The evaluation and comparison of these haptic guides are given and their effect on the user's performance in object selection in VE is investigated.
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